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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,241	09/22/2003	Riki Ogawa	243056US2SRD	9498

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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

PATEL, JAYESH A

ART UNIT	PAPER NUMBER
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2624

NOTIFICATION DATE	DELIVERY MODE
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06/12/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/666,241	Applicant(s) OGAWA ET AL.	
	Examiner JAYESH PATEL	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04/22/2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 22 2009 has been entered.

Claim Objections

Claim 7 is objected to because of the following informalities: "the pellicle" at line 16 should read "the pellicle frame". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 and 7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 1 and 7 recite limitations "**when the loss of the detected reflected light is**

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greater than a predetermined threshold is detected” at line 13-14 creates a new matter situation. The specification on page 17 lines 2-8 describes the autofocus unit monitors the value of the reflected light (SA +Sb) and when **the value becomes equal to or less than the threshold value**, the servo control is stopped. The specification does not recite **“when the loss of the detected reflected light is greater than a predetermined threshold is detected”**.

Claims 2-12 depend directly or indirectly on claims 1 and 7 and therefore they are rejected.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1 and 7 recite “fixing the specimen surface to a reference level corresponding to a position of the specimen surface **before the stopping**” It is unclear as to what is stopping. Claim 7 recites similar limitation therefore it is rejected. Claims 2-12 depend directly or indirectly on claims 1 and 7 and therefore they are rejected.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5, 7-9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al (US 6259080) hereafter Li in view of Nguyen (US 6459491) hereafter Nguyen and in further view of as best understood by the examiner.

Regarding claim 1, Li discloses a specimen surface level adjusting method used in an apparatus (**Figs 1,4**) for inspecting a pattern on a surface of a specimen, wherein the apparatus comprises an optical system (**optical section 2**) of inspecting the pattern on the basis of a detected image (**image processing section 4**) obtained by projecting an inspecting light onto the specimen surface (**irradiation light transmitted through the specimen s at Col 5 lines 38**) and of scanning the specimen two-dimensionally, a moving mechanism for moving the specimen up and down (**Stage drive section 22**) while the optical system scans the specimen, an autofocus mechanism (**autofocus mechanism 3**) of focusing the optical system on the specimen surface by servo driving the moving mechanism on the basis of the intensity of reflected light resulting from level measuring light projected onto the specimen surface, the method comprising:

detecting a loss of the reflected light caused by the specimen S placed on a scanning stage 1 blocking out the reflected light (**Col 14 lines 6-13 which discloses the loss of reflected light, a contrast level detected by the sensor is smaller shows the loss in the reflected light at Col 6 lines 4-5 and 22-24**);

suspending the focusing the optical system (**autofocussing cannot be executed at Col 6 lines 20 and Col 8 lines 50 where the autofocussing is disabled**) on the specimen surface by servo driving the moving mechanism when the loss of the detected reflected light is greater than a predetermined threshold is detected (**when the difference output C of the light is equal to or greater than the threshold value TH1 the focusing is affected at Col 14 lines 52-54 or suspended or disabled as seen earlier at Col 8 lines 50**); and

fixing the specimen surface to a reference level (**stage 1 is moved to the previous time in focus position which has been shot just before autofocussing comes to be disabled or stopped at col 8 lines 44-50**) corresponding to a position of the specimen surface before the stopping while the focusing the optical system on the specimen surface by servo driving the moving mechanism remains suspended. Li discloses the autofocus device and method which has specimen S, however is silent and does not disclose the specimen as pellicle with frame.

Nguyen discloses the pellicle with frame and the intensity of the reflected light at **Col 8 lines 38-49** and further discloses that the apparatus that includes lenses to focus light at **Col 5 lines 53-55**. Li discloses that the auto focal point detection that is high speed and highly accurate at (**Col 14 lines 25-28**), therefore it would be obvious for one of ordinary skill in the art to use the apparatus of Li with the pellicle with frame as disclosed by Nyugen to achieve the claimed invention. Also it would be one of ordinary skill in the art with the

teachings of Li to set the threshold levels and autofocus operation to any value depending on the situation.

Regarding claim 2, Li and Nyugen disclose the specimen surface level adjusting method according to claim 1. Li discloses irradiating the light at the specimen **(irradiation light transmitted through the specimen s at Col 5 lines 38)**, however is silent and does not expressly recite wherein the measuring light is projected diagonally onto the specimen surface. Nyugen disclose projecting the light diagonally as seen in fig 1. One of ordinary skill in the art can make the light to project diagonally as claimed. The applicant has not shown the advantages of projecting the light diagonally and it is a design choice.

Regarding claim 3, Li and Nyugen disclose the specimen surface level adjusting method according to claim 1. Li disclose further wherein the reference level is a height **(the previous in-focus position refers to the height (Z-axis) of the specimen and the stage at Col 8 lines 48-50 and col 7 lines 50)** of the specimen surface immediately before the specimen surface is fixed.

Regarding claim 5, Li and Nyugen disclose the specimen surface level adjusting method according to claim 1. Li disclose further wherein the reflected light is caused to enter an optical sensor including a plurality of photoelectric conversion elements **(image pick-up section 5 and A/d converter which**

converts light or optical signals in to digital or photoelectric conversion in fig 4), and the loss of the reflected light is detected by monitoring the photoelectric conversion output of each of said plurality of photoelectric conversion elements **(Fig 11 where the pixel array shows plurality of photoelectric conversion elements or pixels)**.

Regarding claim 7, see the explanation of claim 1. Nguyen further discloses recording the position of the pellicle frame where the loss of the detected light is greater than the predetermined threshold before inspecting the pattern at **(Col 8 lines 42-49)** where the higher intensity indexes are compared with the known indexes **(predetermined threshold)** based on the distance **(position)** of the pellicle frame meeting the claim limitation.

Regarding claim 8, Li and Nyugen disclose the specimen surface level adjusting method according to claim 7. Li discloses irradiating the light at the specimen **(irradiation light transmitted through the specimen s at Col 5 lines 38)**, however is silent and does not expressly recite wherein the measuring light is projected diagonally onto the specimen surface. Nyugen disclose projecting the light diagonally as seen in fig 1. One of ordinary skill in the art can make the light to project diagonally as claimed. The applicant has not shown the advantages of projecting the light diagonally and it is a design choice.

Regarding claim 9, Li and Nyugen disclose the specimen surface level adjusting method according to claim 7. Li disclose further wherein the reference level is a height **(the previous in-focus position refers to the height (Z-axis) of the specimen and the stage at Col 8 lines 48-50 and col 7 lines 50)** of the specimen surface immediately before the specimen surface is fixed.

Regarding claim 11, Li and Nyugen disclose the specimen surface level adjusting method according to claim 7. Li disclose further wherein the reflected light is caused to enter an optical sensor including a plurality of photoelectric conversion elements **(image pick-up section 5 and A/d converter which converts light or optical signals in to digital or photoelectric conversion in fig 4)**, and the loss of the reflected light is detected by monitoring the photoelectric conversion output of each of said plurality of photoelectric conversion elements **(Fig 11 where the pixel array shows plurality of photoelectric conversion elements or pixels)**.

Claims 4 and 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Li in view of Nyugen and in further view of Kawashima et al. (US 5124562) hereafter Kawashima.

Regarding Claim 4, Li and Nyugen discloses the specimen surface level adjusting method according to claim 1. Li discloses the reference level as seen in claim 1 and 3 however does not expressly recite the reference level is the

average value of the level in a specific period of time before the specimen surface is fixed.

Kawashima discloses the reference level is the average value of the level in a specific period of time before the specimen surface is fixed at **(Col 11 Lines 3-6)**. Kawashima discloses detecting the surface position of an object quickly and with high precision **(Col 2 Lines 53-55)**. Li, Nyugen and Kawashima are analogous art and from the same field of endeavor, therefore it would have been obvious for one of ordinary skill in the art, at the time the invention was made to use the teachings of Kawashima in the device disclosed by Li and Nyugen for the above reasons.

Regarding Claim 10, Li and Nyugen discloses the specimen surface level adjusting method according to claim 7. Li however does not expressly recite the reference level is the average value of the level in a specific period of time before the specimen surface is fixed.

Kawashima discloses the reference level is the average value of the level in a specific period of time before the specimen surface is fixed at **(Col 11 Lines 3-6)**. Kawashima discloses detecting the surface position of an object quickly and with high precision **(Col 2 Lines 53-55)**. Li, Nyugen and Kawashima are analogous art and from the same field of endeavor, therefore it would have been obvious for one of ordinary skill in the art, at the time the invention was made to

use the teachings of Kawashima in the device disclosed by Li and Nyugen for the above reasons.

Claims 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li in view of Nyugen and in further in view of Yamada et al. (US 5323016) hereafter Yamada.

Regarding Claim 6, Li and Nyugen disclose the specimen surface level adjusting method according to claim 1. Li however does not expressly recite specimen surface is placed on a piezoelectric element, and a voltage applied to the piezoelectric element adjusts the level of the specimen surface.

Yamada discloses the specimen surface **(stage 3)** supported by three piezoelectric devices at **(Col 10 Lines 50-52)**. Also the fact that actuating the piezoelectric devices **(Col 10 Lines 50-52)** means an electrical signal (voltage) is applied to create motion. Li, Nyugen and Yamada are from the same field of endeavor and it would have been obvious for one of ordinary skill in the art to detect and correct the deviation of the specimen on the surface while keeping the specimen at the site without large displacement at correction **(Col 1 Lines 21-38)** as taught by Yamada in the apparatus of Li and Nyugen.

Regarding Claim 12, Li and Nyugen disclose the specimen surface level adjusting method according to claim 7. Li however does not expressly recite

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specimen surface is placed on a piezoelectric element, and a voltage applied to the piezoelectric element adjusts the level of the specimen surface.

Yamada discloses the specimen surface **(stage 3)** supported by three piezoelectric devices at **(Col 10 Lines 50-52)**. Also the fact that actuating the piezoelectric devices **(Col 10 Lines 50-52)** means an electrical signal (voltage) is applied to create motion. Li, Nyugen and Yamada are from the same field of endeavor and it would have been obvious for one of ordinary skill in the art to detect and correct the deviation of the specimen on the surface while keeping the specimen at the site without large displacement at correction **(Col 1 Lines 21-38)** as taught by Yamada in the apparatus of Li and Nyugen.

Other Cited Prior art

The other cited prior art pertinent to applicant's disclosure but not relied on are (US 6778285), (US 5742386), (US 6835502), (US 6813001), (US 6128129), (US 5652657), (US 5717198), 'US 4669875), (US 20020159040) and (US 20010019100).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAYESH PATEL whose telephone number is (571)270-1227. The examiner can normally be reached on 5-4-9.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Werner can be reached on 571-272-7401. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

05/29/2009
/JAYESH PATEL/
Examiner, Art Unit 2624

/Brian P. Werner/
Supervisory Patent Examiner, Art Unit 2624